

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

CONVERSANT WIRELESS LICENSING)
S.A.R.L.,)
)
Plaintiff,)
) Civil No. 6:20-cv-00324
v.)
) **JURY TRIAL DEMANDED**
TESLA, INC.,)
)
Defendant.)

ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Conversant Wireless Licensing S.A.R.L. (“Conversant”) files this Complaint for patent infringement against Defendant Tesla, Inc. (“Tesla” or “Defendant”), alleging as follows:

NATURE OF SUIT

1. This is a claim for patent infringement arising under the patent laws of the United States, Title 35 of the United States Code.

PARTIES

2. Plaintiff Conversant Wireless Licensing S.A.R.L. (“Conversant”) is a corporation duly organized and existing under the laws of the Grand Duchy of Luxembourg, having a principal place of business at 12, rue Jean Engling, L-1466, Luxembourg. Conversant has a regular and established place of business and does business relating to the Patents-in-Suit, as defined in section I below, in connection with its wholly-owned subsidiary, Conversant Wireless Licensing Ltd. (“Conversant USA”), a corporation duly organized and existing under the laws of the State of Texas, having a principal place of business at 5630 Granite Parkway #100-247, Suite 247, Plano, TX 75024. All pertinent documents and discovery relevant to this matter either reside at

Conversant USA's local address or will be produced at that address. Conversant is the owner of record of the Patents-in-Suit in this action.

3. Defendant Tesla, Inc. ("Tesla" or "Defendant") is a corporation organized under the laws of the State of Delaware, having a principal place of business at 3500 Deer Creek Road, Palo Alto, CA 94304. Tesla may do business with the fictitious name Tesla Motors, Inc. Tesla can be served with process through its registered agent in the State of Texas, CT Corporation, 1999 Bryan St., Suite 900, Dallas, Texas 75201-3136.

JURISDICTION AND VENUE

4. This action arises under the patent laws of the United States, 35 U.S.C. § 101, *et seq.* This Court has jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

5. Tesla is subject to personal jurisdiction in this Court. This Court has personal jurisdiction over Tesla because Tesla has engaged in continuous, systematic, and substantial activities within this State, including substantial marketing and sales of products within this State and this District. Furthermore, upon information and belief, this Court has personal jurisdiction over Tesla because Tesla has committed acts giving rise to Conversant's claims for patent infringement within and directed to this District.

6. Upon information and belief, Tesla has conducted and does conduct substantial business in this forum, directly and/or through subsidiaries, agents, representatives, or intermediaries, such substantial business including but not limited to: (i) at least a portion of the direct and indirect acts of infringement alleged herein; (ii) purposefully and voluntarily placing one or more infringing products into the stream of commerce with the expectation that they will be purchased by consumers in this forum; or (iii) regularly doing or soliciting business, engaging in other persistent courses of conduct, or deriving substantial revenue from goods and services

provided to individuals in Texas and in this judicial district. Thus, Tesla is subject to this Court's specific and general personal jurisdiction pursuant to due process and the Texas Long Arm Statute.

7. Upon information and belief, Tesla has committed acts of infringement in this District and has one or more regular and established places of business within this District under 28 U.S.C. § 1400(b). Thus, venue is proper in this District under 28 U.S.C. § 1400(b).

8. Tesla maintains a permanent physical presence within this District. For example, it maintains galleries at (1) 12845 Research Boulevard, Austin, Texas 78759; (2) 11600 Century Oaks Terrace, Austin, Texas 78758; and (3) 23011 IH-10 West, San Antonio, Texas 78257. Tesla also maintains service centers in this District, including at 12845 Research Boulevard, Austin, Texas 78759; 23011 IH-10 West, San Antonio, Texas 78257; and 28 Walter Jones, Suite C, El Paso, Texas. Tesla conducts business from at least these locations. Tesla employs employees who work at Tesla's locations in this District.

9. In addition, Tesla maintains charging stations throughout this District. Tesla features commercial signage at each Supercharger station identifying the location as a regular and established place of Tesla's business. Moreover, Superchargers are monitored closely and regularly serviced by Tesla Service Technicians. Tesla's Supercharging stations in this District include at least at the following locations: (1) Austin, TX – Research Boulevard Supercharger, 9607 Research Boulevard, Austin, TX 78759; (2) Austin, TX Supercharger, 6406 N. Interstate 35 Frontage Road, Austin, TX 78752; (3) El Paso Supercharger, 6401 South Desert Boulevard, El Paso, Texas 79932; (4) Fort Stockton, TX Supercharger, 2571 North Front Street, Fort Stockton, Texas 79735; (5) Giddings, TX Supercharger, 3025 East Austin Street, Giddings, Texas 78942; (6) Junction Supercharger, 2415 N Main Street, Junction, Texas 76849; (7) Leon Springs, TX Supercharger, 24165 I-10 #300, San Antonio, Texas 78357; (8) Midland Supercharger, 3001

Antelope Trail, Midland, Texas 79706; (9) Pecos, TX Supercharger, 100 East Pinehurst Street, Pecos, Texas 79772; (10) San Antonio, TX Supercharger, 11745 I-10, San Antonio, Texas 78230; (11) San Marcos, TX Supercharger, 3939 Interstate 35, San Marcos, Texas 78666; (12) Van Horn Supercharger, 1921 Frontage Rd, Van Horn, Texas 79855; and (13) Waco Supercharger, 701 Interstate 35, Bellmead, Texas 76705. Upon information and belief, Tesla also has eight (8) Supercharging stations “coming soon” to this District.

10. Tesla’s locations in this District, including at least those identified in paragraphs 8 and 9 above, are regular and established places of business under 28 U.S.C. § 1391, 28 U.S.C. § 1400(b), and *In re Cray, Inc.*, 871 F.3d 1355, 1360 (Fed. Cir. 2017).

a. Tesla’s locations in this District, including at least those identified in paragraphs 8 and 9 above, are physical places in this District. Each gallery and service center comprises one or more buildings set apart for the purpose of offering for sale, selling, showcasing, and/or servicing infringing products. Each Supercharging station comprises a physical area set apart for the purpose of charging infringing products. Indeed, Tesla itself advertises its physical locations in this District as places of its business and it features commercial signage at each location.

b. Tesla’s locations in this District, including at least those identified in paragraphs 8 and 9 above, are regular and established. Tesla features commercial signage at each location identifying the location as a regular and established place of Tesla’s business.

c. Tesla’s locations in this District, including at least those identified in paragraphs 8 and 9 above, are places of business of Tesla. Tesla offers its own products and services for sale at its locations.

d. Tesla's locations in this District, including at least those identified in paragraphs 8 and 9 above, are physical, geographical locations in this District from which Tesla carries out its business.

e. Tesla employees work at Tesla's locations, including at least those identified in paragraphs 8 and 9 above. Upon information and belief, these Tesla employees are regularly and physically present at Tesla's locations, including at least those identified in paragraphs 8 and 9 above, during business hours and they are conducting Tesla's business while working there.

11. Further, upon information and belief, Tesla trains future employees (specifically, electric vehicle technicians) in this District at Tesla's START Training Program housed at Texas State Technical College in Waco, Texas. Tesla provides the instructor, training equipment, vehicles, tools, and curriculum for the program. Students are employed by Tesla as hourly interns, and following completion of the program they are placed in a Tesla Service Center in North America.

FACTUAL ALLEGATIONS

I. PATENTS-IN-SUIT

12. United States Patent No. 7,606,205 ("the '205 Patent") is entitled "System and Method for Providing Selection Diversity for Multicasting Content." The '205 Patent duly and legally issued on October 20, 2009, from U.S. Patent Application No. 10/281,200, filed on October 28, 2002. The '205 Patent names Karri Ranta-Aho and Anttti Toskala as inventors. Conversant is the current owner of all rights, title, and interest in and to the '205 Patent. A true and correct copy of the '205 Patent is attached hereto as Exhibit A and is incorporated by reference herein.

13. United States Patent No. 7,684,357 ("the '357 Patent") is entitled "Enhanced Pre-Notification Procedure for GERAN MBMS." The '357 Patent duly and legally issued on

March 23, 2010 from U.S. Patent Application No. 11/226,566, filed on September 14, 2005. The '357 Patent is related to provisional application No. 60/611,140, filed on September 17, 2004. The '357 Patent names Harri Jokinen, Guillaume Sebire, and Rami Vaittinen as inventors. Conversant is the current owner of all rights, title, and interest in and to the '357 Patent. A true and correct copy of the '357 Patent is attached hereto as Exhibit B and is incorporated by reference herein.

14. United States Patent No. 10,548,119 ("the '119 Patent") is entitled "Fixed HS-DSCH or E-DCH Allocation for VoIP (or HS-DSCH Without HS-SCCH/E-DCH Without E-DPCCH)." The '119 Patent duly and legally issued on January 28, 2020 from U.S. Patent Application No. 16/247,701, filed on January 15, 2019. The '119 Patent is a continuation of application No. 15/611,214, filed on June 21, 2017, now United States Patent No. 10,244,516. United States Patent No. 10,244,516 is a continuation of application No. 14/330,211, filed on July 14, 2014, now United States Patent No. 9,763,231. United States Patent No. 9,763,231 is a continuation of application No. 11/411,995, filed on April 25, 2006, now United States Patent No. 8,804,505. The '119 Patent is entitled to the benefit of the April 25, 2006 filing date of United States Patent No. 8,804,505. The '119 Patent is related to provisional application No. 60/675,127, filed on April 26, 2005. The '119 Patent names Esa Malkamaki and Markku Kuusela as inventors. Conversant is the current owner of all rights, title, and interest in and to the '119 Patent. A true and correct copy of the '119 Patent is attached hereto as Exhibit C and is incorporated by reference herein.

15. Collectively, the '205 Patent, the '357 Patent, and the '119 Patent are referred to herein as the "Patents-in-Suit."

II. BACKGROUND

16. In 2011, Conversant acquired a portfolio of close to 2,000 patents and patent applications previously owned by Nokia Corporation ("Nokia"), obtaining all right, title, and

interest in, to and under the patents and patent applications in the portfolio, including without limitation the right to sue for past, present, or future infringements of the patents and patent applications acquired. By reason of the aforesaid, Conversant has, since 2011, been the owner of the Patents-in-Suit and the right to enforce them. Before Conversant became the owner of the Patents-in-Suit, the Patents-in-Suit were originally invented by agents or employees of, procured by, or assigned to Nokia.

17. Nokia is and has been a member of the European Telecommunications Standards Institute (“ETSI”), a non-profit Standard Setting Organization headquartered in France. Conversant and/or Nokia have made declarations in respect of the Patents-in-Suit to ETSI, one of the organizational partners of the Third Generation Partnership Project (“3GPP”) that organizes and maintains the development of telecommunications standards applicable to mobile communications products, devices, and services. Telecommunications standards applicable to wireless mobile communications devices include second generation technologies such as Global System for Mobile (“GSM”) and GSM Packet Radio Service (“GPRS”), third generation technologies such as Universal Mobile Telecommunications System (“UMTS”) and High Speed Packet Access (“HSPA”), and fourth generation technologies such as Long-Term Evolution (“LTE”). With respect to the Patents-in-Suit, the declarations and affirmations made by Conversant and/or Nokia include a provision to the effect that the declarant is prepared to grant irrevocable licenses to the Patents-in-Suit on fair, reasonable, and non-discriminatory (“FRAND”) terms. Conversant has specifically agreed to grant a license to the Patents-in-Suit under FRAND terms to willing licensees who negotiate in good faith. For example, on July 22, 2014, Conversant made a declaration to ETSI to the effect that it is willing and prepared to grant irrevocable licenses on terms and conditions that are FRAND with respect to the patents that it owns that cover

functionality that has been implemented in mobile communications devices that are in compliance with the requirements and technical specifications of the mobile communications standards that are promulgated by and maintained by 3GPP.

III. CONVERSANT'S ATTEMPTS TO LICENSE TESLA

18. On or about December 18, 2018, Conversant sent a letter and FRAND licensing offer to Tesla. The letter stated, “Conversant Wireless owns an extensive patent portfolio related to mobile communications networks, which includes hundreds of patents and patent applications that have been declared essential to 2G, 3G and 4G mobile standards.” Conversant then offered a FRAND license to its applicable standard-essential patent (“SEP”) portfolio: “Conversant Wireless is offering a FRAND license to its SEP portfolio to manufacturers of vehicles with cellular functionality, including Tesla.” As part of its FRAND offer, Conversant provided Tesla with access to a Share File site which included representative claim charts for Conversant’s patent portfolio.

19. In addition, Conversant is a member of the Avanci patent pool. As such, upon information and belief, Avanci also offered Tesla a FRAND license to Conversant’s SEP patent portfolio, among other patents.

20. As of December 18, 2018, the Shared Site provided by Conversant to Tesla included over 20 claim charts for Conversant’s Standard Essential Patents issued in the United States and foreign countries. At least by having access to this Shared Site, Tesla had knowledge of each of the Patents-in-Suit and its infringement of such patents, prior to the filing of this lawsuit.

21. After Tesla ignored Conversant’s December 18, 2018 FRAND license offer, on February 26, 2019, Conversant again contacted Tesla to follow up on its previous offer, stating in

part, “As you are well aware, FRAND licensing of Standard Essential Patents (SEPs) requires active participation of both sides in the negotiations.”

22. Tesla finally responded on April 4, 2019 but failed to provide any material response to Conversant’s FRAND offer and related correspondence.

23. After no further communication from Tesla, on or about February 26, 2020, Conversant filed patent infringement complaints against Tesla, Inc. and its German subsidiary Tesla Germany GmbH before the Manheim Regional Court in Germany.

24. On March 16, 2020, Conversant again contacted Tesla, informing it of the German patent infringement complaints, stating “Tesla’s failure to provide a material response or any further communication raises doubts as to its actual willingness to take a license. We also understand that Tesla has not taken the parallel pool offer from Avanci, which presents an alternative opportunity to license our portfolio. . . . We remain open and willing to discuss our bilateral license offer and hope that a meeting can be arranged promptly.”

25. On March 26, 2020, Tesla responded by requesting a copy of the German patent infringement complaints and indicating that “Tesla is and remains a willing licensee of the Conversant portfolio for applicable standard-essential-patents (“SEP”),” and suggested that Tesla would formulate a counteroffer for Conversant’s portfolio for applicable SEPs.

26. On April 6, 2020, Conversant responded by again offering a FRAND license to its SEP portfolio: “I can confirm that our applicable SEPs can be licensed either through the Avanci pool or by way of our bilateral FRAND license offer presented to you in December 2019. As we

understand that you have declined our bilateral FRAND offer, we now look forward to your mentioned counter offer.”

27. To date, Tesla has not taken a license to Conversant’s patent portfolio, or any of the Patents-in-Suit.

IV. THE TESLA STANDARD-COMPLIANT PRODUCTS

28. As further discussed below, Tesla has directly and indirectly infringed and continues to directly and indirectly infringe each of the Patents-in-Suit by engaging in acts constituting infringement under 35 U.S.C. § 271(a), (b), and/or (c), including without limitation by one or more of making, using, selling and offering to sell, in this District and elsewhere in the United States, and importing into this District and elsewhere in the United States Tesla’s connected vehicle products (the “Tesla Standard-Compliant Products”).

29. Tesla is doing business in the United States, and, more particularly, in the this District by making, using, selling, importing, and/or offering for sale the Tesla Standard-Compliant Products, including without limitation Tesla’s Model S, Model 3, Model X, Model Y, Cybertruck, and Roadster that infringe one or more of the patent claims involved in this action.

30. Upon information and belief, and as widely reported, the Tesla Standard-Compliant Products, including the above-referenced connected vehicles, are compliant with at least 3G and/or 4G/LTE cellular network standards. *See, e.g., Tesla unveils world’s first mass-produced, highway capable EV*, Tesla Investors, Mar. 26, 2009, <https://ir.tesla.com/news-releases/news-release-details/tesla-unveils-worlds-first-mass-produced-highway-capable-ev> (describing “in-car 3G connectivity”); Roger Cheng, *Tesla taps AT&T to bring cellular connection to its cars*, CNET, Oct. 17, 2013, <https://www.cnet.com/news/tesla-taps-at-t-to-bring-cellular-connection-to-its-cars> (describing 3G and HSPA+ capability); *First LTE-enabled Tesla Model S delivered*, Electrek, June

5, 2015, <https://electrek.co/2015/06/05/first-lte-enabled-model-s-delivered> (reporting new Model S delivered with working 4G/LTE capability); *Tesla to Acquire SolarCity: Presentation to Proxy Advisory Firms*, Form S-4 File No.:333-213390, Oct. 25, 2016, at 16 (stating vehicle features include 4G/LTE connectivity); Russ Mitchell, *Tesla Model 3 has some unusual features, including an instrument-free dash*, Seattle Times, Aug. 5, 2017, <https://www.seattletimes.com/business/tesla-model-3-has-some-unusual-features-including-an-instrument-free-dash> (reporting Model 3 is 4G/LTE capable); Ryan Whittam, *Tesla will begin charging \$10 per month for “Premium” LTE features*, Dec. 9, 2019, <https://www.extremetech.com/extreme/303159-tesla-will-begin-charging-10-per-month-for-premium-lte-features> (reporting that all Tesla vehicles are 4G/LTE capable) (collectively attached hereto as Exhibit D).

31. Tesla's Support webpage confirms that the Tesla Standard-Compliant Products, including Tesla's Model 3, Model S, Model X, and Model Y connected vehicles, come with cellular connection capabilities. See, e.g., *Support: Connectivity*, Tesla, <https://www.tesla.com/support/connectivity> (attached hereto as Exhibit E). At a minimum, Tesla offers its connectivity package with 3G and 4G/LTE cellular free for the first year (for orders of Model S, Model X, Model Y, and Model 3 with Premium Interior) and 30 days (for orders of Model 3 Standard Range and Standard Range Plus), and charges \$9.99 per month thereafter. See *id.*

32. Further, the Owner's Manuals for the Tesla Standard-Compliant Products, including Tesla's Model 3, Model S, Model X, and Model Y connected vehicles, confirm that the Tesla Standard-Compliant Products are compliant with at least 3G and/or 4G/LTE cellular network standards. For example, the Owner's Manual for the Model S describes how the internet

connection of the Model S can be switched from a cellular connection (“usually LTE or 3G”) to a Wi-Fi connection. *See, e.g.*, Model S Owner’s Manual, v. 2020.4 North America, at 156 (attached hereto as Exhibit F).

COUNT 1—INFRINGEMENT OF THE '205 PATENT

33. Conversant incorporates by reference the allegations set forth in Paragraphs 1–32 of this Complaint as though fully set forth herein.

34. In violation of 35 U.S.C. § 271(a), Tesla is and has been directly infringing one or more of the '205 Patent’s claims, including at least Claim 21, by making, using, offering to sell, and/or selling in the United States, and/or importing into the United States, without authority, products that support 3G and/or 4G/LTE connectivity, including without limitation the Tesla Standard-Compliant Products as defined above. Each of the Tesla Standard-Compliant Products comprises hardware and software components that together practice every element of one or more claims of the '205 Patent, including at least Claim 21. These components include those hardware and software components that enable the set of wireless cellular communications functionalities known as 3G and/or 4G/LTE and implement 3G and/or 4G/LTE in compliance with the requirements of the technical standards applicable to mobile communications, including the technical standards promulgated by 3GPP and various subsequent releases and versions thereof. These components enable the Tesla Standard-Compliant Products to perform 3G and/or 4G/LTE communications functionality.

35. It is necessary to practice one or more of the claims of the '205 Patent to comply with the requirements of certain standards applicable to mobile communications. For example, it

is necessary to practice at least Claim 21 from the '205 Patent to comply with certain 3G and/or 4G/LTE standards.

36. The Tesla Standard-Compliant Products comply with the applicable standards covered by the claims of the '205 Patent.

37. The Tesla Standard Compliant Products comprise at least the apparatus of Claim 21 of the '205 Patent.

38. By way of example, Claim 21 of the '205 Patent requires “a receiver configured to receive multicasting content from one or more cells in a network.”

39. The applicable standards covered by the claims of the '205 Patent, including but not limited to 3GPP TS 36.300 V12.8.0 (2015-12), describe a receiver configured to receive multicasting content from one or more cells in a network:

15 MBMS

....

MBSFN Area: an MBSFN Area consists of a group of cells within an MBSFN Synchronization Area of a network, which are co-ordinated to achieve an MBSFN Transmission. Except for the MBSFN Area Reserved Cells, all cells within an MBSFN Area contribute to the MBSFN Transmission and advertise its availability. The UE may only need to consider a subset of the MBSFN areas that are configured, i.e. when it knows which MBSFN area applies for the service(s) it is interested to receive.

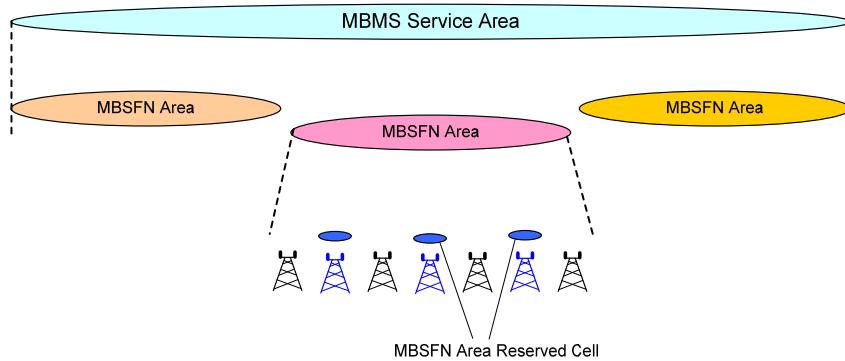


Figure 15-1: MBMS Definitions

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15.1.2 E-MBMS User Plane Protocol Architecture

The overall U-plane architecture of content synchronization is shown in Figure 15.1.2-1. This architecture is based on the functional allocation for Unicast and the SYNC protocol layer is defined additionally on transport network layer to support content synchronization mechanism.

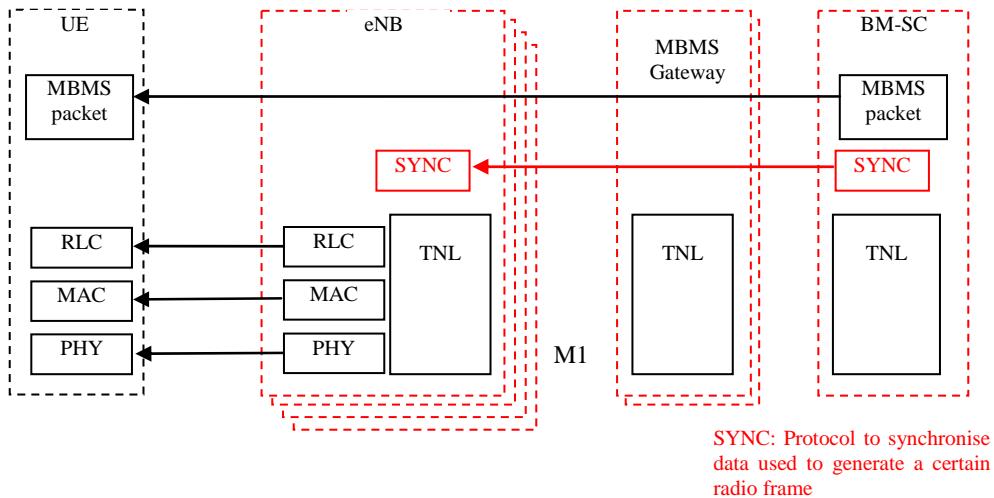


Figure 15.1.2-1: The overall u-plane architecture of the MBMS content synchronization

(3GPP TS 36.300 V12.8.0 (2015-12), at 128–29, 131–32.)

40. By way of example, Claim 21 of the '205 Patent requires “a receiver configured . . . to receive cell information from at least one cells.”

41. The applicable standards covered by the claims of the '205 Patent, including but not limited to 3GPP TS 36.331 V12.8.0 (2015-12), describe a receiver configured to receive cell information from at least one cells:

6.2 RRC messages

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6.2.2 Message definitions

- *SystemInformation*

The *SystemInformation* message is used to convey one or more System Information Blocks. All the SIBs included are transmitted with the same periodicity.

Signalling radio bearer: N/A

RLC-SAP: TM

Logical channel: BCCH

Direction: E UTRAN to UE

....

6.3 RRC information elements

....

- *SystemInformationBlockType13*

The IE *SystemInformationBlockType13* contains the information required to acquire the MBMS control information associated with one or more MBSFN areas.

SystemInformationBlockType13 information element

```
-- ASN1START
SystemInformationBlockType13-r9 ::= SEQUENCE {
    mbsfn-AreaInfoList-r9
    MBMS-NotificationConfig-r9,
    lateNonCriticalExtension
    OCTET STRING
    OPTIONAL,
    ...
}
-- ASN1STOP
```

....

- ***MBSFN-AreaId***

The IE *MBSFN-AreaId* identifies an MBSFN area by means of a locally unique value at lower layers i.e. it concerns parameter N_{ID}^{MBSFN} in TS 36.211 [21, 6.10.2.1].

MBSFN-AreaId information element

```
-- ASN1START
MBSFN-AreaId-r12 ::= INTEGER (0..255)
-- ASN1STOP
```

- ***MBSFN-AreaInfoList***

The IE *MBSFN-AreaInfoList* contains the information required to acquire the MBMS control information associated with one or more MBSFN areas.

MBSFN-AreaInfoList information element

```
-- ASN1START
MBSFN-AreaInfoList-r9 ::= SEQUENCE (SIZE(1..maxMBSFN-Area)) OF MBSFN-AreaInfo-r9
MBSFN-AreaInfo-r9 ::= SEQUENCE {
  mbsfn-AreaId-r9           MBSFN-AreaId-r12,
  non-MBSFNregionLength     ENUMERATED {s1, s2},
  notificationIndicator-r9  INTEGER (0..7),
  mcch-Config-r9             SEQUENCE {
    mcch-RepetitionPeriod-r9  ENUMERATED {rf32, rf64, rf128, rf256},
    mcch-Offset-r9            INTEGER (0..10),
    mcch-ModificationPeriod-r9 ENUMERATED {rf512, rf1024},
    sf-AllocInfo-r9           BIT STRING (SIZE(6)),
    signallingMCS-r9          ENUMERATED {n2, n7, n13, n19}
  },
  ...
}
-- ASN1STOP
```

(3GPP TS 36.331 V12.8.0 (2015-12), at 159, 163, 213, 232–33, 365.)

42. By way of example, Claim 21 of the '205 Patent requires the limitation “wherein said cell information indicates which cells transmit the same multicasting content.”

43. The applicable standards covered by the claims of the '205 Patent, including but not limited to 3GPP TS 36.211 V12.4.0 (2014-12), describe cell information indicating which cells transmit the same multicasting content:

6.10.2 MBSFN reference signals

MBSFN reference signals shall be transmitted in the MBSFN region of MBSFN subframes only when the PMCH is transmitted. MBSFN reference signals are transmitted on antenna port 4.

MBSFN reference signals are defined for extended cyclic prefix only.

6.10.2.1 Sequence generation

The MBSFN reference-signal sequence $r_{l,n_s}(m)$ is defined by

$$r_{l,n_s}(m) = \frac{1}{\sqrt{2}}(1 - 2 \cdot c(2m)) + j \frac{1}{\sqrt{2}}(1 - 2 \cdot c(2m+1)), \quad m = 0, 1, \dots, 6N_{\text{RB}}^{\text{max,DL}} - 1$$

where n_s is the slot number within a radio frame and l is the OFDM symbol number within the slot. The pseudo-random sequence $c(i)$ is defined in clause 7.2. The pseudo-random sequence generator shall be initialised with $c_{\text{init}} = 2^9 \cdot (7 \cdot (n_s + 1) + l + 1) \cdot (2 \cdot N_{\text{ID}}^{\text{MBSFN}} + 1) + N_{\text{ID}}^{\text{MBSFN}}$ at the start of each OFDM symbol.

....

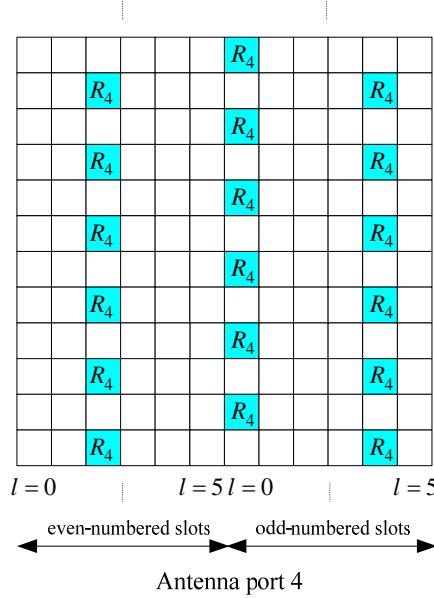


Figure 6.10.2.2-1: Mapping of MBSFN reference signals (extended cyclic prefix, $\Delta f = 15$ kHz)

(3GPP TS 36.211 V12.4.0 (2014-12), at 91–92).

44. In addition, the applicable standards covered by the claims of the '205 Patent, including but not limited to 3GPP TS 36.331 V12.8.0 (2015-12), describe cell information indicating which cells transmit the same multicasting content:

5.8 MBMS

....

5.8.1.1 General

....

A limited amount of MBMS control information is provided on the BCCH. This primarily concerns the information needed to acquire the MCCH(s). This information is carried by means of a single MBMS specific SystemInformationBlock: SystemInformationBlockType13. An MBSFN area is identified solely by the mbsfn-AreaId in SystemInformationBlockType13. At mobility, the UE considers that the MBSFN area is continuous when the source cell and the target cell broadcast the same value in the mbsfn-AreaId.

(3GPP TS 36.331 V12.8.0 (2015-12), at 139.)

45. By way of example, Claim 21 of the '205 Patent requires "a processor configured to select at least one cell, from said one or more cells."

46. The applicable standards covered by the claims of the '205 Patent, including but not limited to 3GPP TS 36.300 V12.8.0 (2015-12), describe a processor configured to select at least one cell, from said one or more cells:

15.4 Service Continuity

Mobility procedures for MBMS reception allow the UE to start or continue receiving MBMS service(s) via MBSFN when changing cell(s). E-UTRAN procedures provide support for service continuity with respect to mobility within the same MBSFN area. Within the same geographic area, MBMS services can be provided on more than one frequency and the frequencies used to provide MBMS services may change from one geographic area to another within a PLMN.

UEs that are receiving MBMS service(s) in RRC_IDLE state performing cell reselection or are in RRC_CONNECTED state obtain target cell MTCH information from the target cell MCCH.

....

- user service description (USD): in the USD (see 3GPP TS 26.346 [49]), the application/service layer provides for each service the TMGI, the session start and end time, the frequencies and the MBMS service area identities (MBMS SAIs, see definition in section 15.3 of 3GPP TS 23.003 [26]) belonging to the MBMS service area (see definition in 3GPP TS 23.246 [48]);

....

In RRC_IDLE, the UE applies the normal cell reselection rules with the following modifications:

- the UE which is receiving MBMS service(s) via MBSFN and can only receive these MBMS service(s) via MBSFN while camping on the frequency providing these MBMS service(s) is allowed to make this frequency highest priority;

....

In RRC_CONNECTED, the UE that is receiving or interested to receive MBMS via MBSFN informs the network about its MBMS interest via a RRC message and the network does its best to ensure that the UE is able to receive MBMS and unicast services subject to the UE's capabilities:

- the UE indicates the frequencies which provide the service(s) that the UE is receiving or is interested to receive simultaneously, and which can be received simultaneously in accordance with the UE capabilities.
- the UE indicates its MBMS interest at RRC connection establishment (the UE does not need to wait until AS security is activated), and whenever the set of frequencies on which the UE is interested in receiving MBMS services has changed compared with the last indication sent to the network (e.g. due to a change of user interest or of service availability).

(3GPP TS 36.300 V12.8.0 (2015-12), at 137–38.)

47. In addition, the applicable standards covered by the claims of the '205 Patent, including but not limited to 3GPP TS 36.133 V12.8.0 (2015-07), describe a processor configured to select at least one cell, from said one or more cells:

3 Definitions, symbols and abbreviations

....

3.3 Abbreviations

....

RSRP Reference Signal Received Power

RSRQ Reference Signal Received Quality

....

4 E-UTRAN RRC_IDLE state mobility

....

4.4 MBSFN Measurements

4.4.1 Introduction

....

UE shall measure MBSFN RSRP, MBSFN RSRQ and MCH BLER only in subframes and on carriers where UE is decoding PMCH. The requirements are specified for any carrier where PMCH is received by UE. The requirements specified in this section apply for any carrier frequency with configured MBSFN subframes with PMCH, which may be the same as or different from any serving unicast carrier.

(3GPP TS 36.133 V12.8.0 (2015-07), at 44, 47–48, 51, 63.)

48. In addition, the applicable standards covered by the claims of the '205 Patent, including but not limited to 3GPP TS 36.304 V12.6.0 (2015-09), describe a processor configured to select at least one cell, from said one or more cells:

5.2.4 Cell Reselection evaluation process

5.2.4.1 Reselection priorities handling

....

If the UE is capable of MBMS Service Continuity and receiving or interested to receive an MBMS service and can only receive this MBMS service while camping on a frequency on which it is provided, the UE may consider that frequency to be the highest priority during the MBMS session [2] as long as the reselected cell is broadcasting SIB13 and as long as:

- SIB15 of the serving cell indicates for that frequency one or more MBMS SAIs included in the MBMS User Service Description (USD) [22] of this service; or
- SIB15 is not broadcast in the serving cell and that frequency is included in the USD of this service.

....

5.2.4.6 Intra-frequency and equal priority inter-frequency Cell Reselection criteria

The cell-ranking criterion R_s for serving cell and R_n for neighbouring cells is defined by:

$$R_s = Q_{\text{meas},s} + Q_{\text{Hyst}} - Q_{\text{offset}_{\text{temp}}}$$

$$R_n = Q_{\text{meas},n} - Q_{\text{offset}} - Q_{\text{offset}_{\text{temp}}}$$

where:

Q_{meas}	RSRP measurement quantity used in cell reselections.
Q_{offset}	For intra-frequency: Equals to $Q_{\text{offset}_{s,n}}$, if $Q_{\text{offset}_{s,n}}$ is valid, otherwise this equals to zero. For inter-frequency: Equals to $Q_{\text{offset}_{s,n}}$ plus $Q_{\text{offset}_{\text{frequency}}}$, if $Q_{\text{offset}_{s,n}}$ is valid, otherwise this equals to $Q_{\text{offset}_{\text{frequency}}}$.
$Q_{\text{offset}_{\text{temp}}}$	Offset temporarily applied to a cell as specified in [3]

....

In all cases, the UE shall reselect the new cell, only if the following conditions are met:

- the new cell is better ranked than the serving cell during a time interval $T_{\text{reselection}_{\text{RAT}}}$;
- more than 1 second has elapsed since the UE camped on the current serving cell.

(3GPP TS 36.304 V12.6.0 (2015-09), at 18, 22–23.)

49. By way of example, Claim 21 of the '205 Patent requires a processor configured to select at least one cell “from which to receive the multicasting content the terminal is interested in based at least in part on said cell information.”

50. The applicable standards covered by the claims of the '205 Patent, including but not limited to 3GPP TS 36.300 V12.8.0 (2015-12), describe a processor configured to select at

least one cell from which to receive the multicasting content the terminal is interested in based at least in part on said cell information:

15.4 Service Continuity

Mobility procedures for MBMS reception allow the UE to start or continue receiving MBMS service(s) via MBSFN when changing cell(s). E-UTRAN procedures provide support for service continuity with respect to mobility within the same MBSFN area. Within the same geographic area, MBMS services can be provided on more than one frequency and the frequencies used to provide MBMS services may change from one geographic area to another within a PLMN.

UEs that are receiving MBMS service(s) in RRC_IDLE state performing cell reselection or are in RRC_CONNECTED state obtain target cell MTCH information from the target cell MCCH.

(3GPP TS 36.300 V12.8.0 (2015-12), at 137.)

51. In addition, the applicable standards covered by the claims of the '205 Patent, including but not limited to 3GPP TS 36.331 V12.8.0 (2015-12), describe a processor configured to select at least one cell from which to receive the multicasting content the terminal is interested in based at least in part on said cell information:

5.8 MBMS

....

5.8.1.1 General

....

A limited amount of MBMS control information is provided on the BCCH. This primarily concerns the information needed to acquire the MCCH(s). This information is carried by means of a single MBMS specific SystemInformationBlock: SystemInformationBlockType13. An MBSFN area is identified solely by the mbsfn-AreaId in SystemInformationBlockType13. At mobility, the UE considers that the MBSFN area is continuous when the source cell and the target cell broadcast the same value in the mbsfn-AreaId.

(3GPP TS 36.331 V12.8.0 (2015-12), at 139.)

52. Upon information and belief, the Tesla Standard-Compliant Products comply or have complied with the applicable standards covered by the claims of the '205 Patent, including

without limitation 3G and/or 4G/LTE, and therefore infringe the '205 Patent, including at least Claim 21.

53. The Tesla Standard-Compliant Products have complied, and continue to comply, with 3GPP TS 36.300 V12.8.0 (2015-12).

54. The Tesla Standard-Compliant Products have complied, and continue to comply, with 3GPP TS 36.331 V12.8.0 (2015-12).

55. The Tesla Standard-Compliant Products have complied, and continue to comply, with 3GPP TS 36.211 V12.4.0 (2014-12).

56. The Tesla Standard-Compliant Products have complied, and continue to comply, with 3GPP TS 36.133 V12.8.0 (2015-07).

57. The Tesla Standard-Compliant Products have complied, and continue to comply, with 3GPP TS 36.304 V12.6.0 (2015-09).

58. Tesla is infringing claims of the '205 Patent literally and/or pursuant to the doctrine of equivalents.

59. In violation of 35 U.S.C. § 271(b), Tesla is and has been infringing one or more of the '205 Patent's claims, including at least Claim 21, indirectly by inducing the infringement of the '205 Patent's claims by third parties, including without limitation manufacturers, resellers, and/or users of Tesla's Standard-Compliant Products, in this District, and elsewhere in the United States. Direct infringement is the result of activities performed by users of the Tesla Standard-Compliant Products in accordance with the claims of the '205 Patent.

60. Tesla's affirmative acts of selling the Tesla's Standard-Compliant Products, causing the Tesla Standard-Compliant Products to be manufactured and distributed, providing instructive materials and information concerning operation and use of the Tesla

Standard-Compliant Products, and maintenance/service for such products, induced users of the Tesla Standard-Compliant Products to infringe the '205 Patent's claims by using the vehicles in their normal and customary way. By and through these acts, Tesla knowingly and specifically intends the users of the Tesla Standard-Compliant Products to infringe the '205 Patent's claims. Tesla (1) knows and knew of the '205 Patent at least prior to the filing of this lawsuit, (2) performs affirmative acts that constitute induced infringement, and (3) knows or should know that those acts would induce actual infringement of one or more of the '205 Patent's claims by users of the Tesla Standard-Compliant Products.

61. In violation of 35 U.S.C. § 271(c), Tesla is and has been infringing one or more of the '205 Patent's claims, including at least Claim 21, indirectly by contributing to the infringement of the '205 Patent's claims by third parties, including without limitation manufacturers, resellers, and/or users of the Tesla Standard-Compliant Products, in this District, and elsewhere in the United States. Direct infringement is the result of activities performed by manufacturers, resellers, and/or users in relation to the Tesla Standard-Compliant Products, including without limitation use of the Tesla Standard-Compliant Products.

62. Upon information and belief, Tesla at least installs, configures, and sells Tesla Standard-Compliant Products with distinct and separate hardware and/or software components especially made or especially adapted to practice the invention claimed in the '205 Patent. That hardware and/or software is a material part of the invention. That hardware and/or software is not a staple article or commodity of commerce because it is specifically designed to perform the

claimed functionality. Any other use of that hardware and/or software would be unusual, far-fetched, illusory, impractical, occasional, aberrant, or experimental.

63. Therefore, upon information and belief, Tesla is making, using, offering to sell, and/or selling in the United States, and/or importing into the United States, without authority, a component of a patented machine, manufacture, combination or composition, or a material or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of a patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use.

64. As explained above, Tesla had actual notice of the '205 Patent prior to this lawsuit being filed and had knowledge of the infringing nature of its activities. Nevertheless, Tesla continued its infringing activities.

65. Instead of taking a FRAND license to Conversant's patent portfolio, Tesla continues, in bad faith, to directly and indirectly infringe Conversant's patents, including the '205 Patent by making, using, offering for sale and selling infringing Tesla Standard-Compliant Products, and inducing and contributing to the infringement of others.

66. Therefore, upon information and belief, Tesla's infringement of the '205 Patent's claims, including at least Claim 21, has been and continues to be willful entitling Conversant to increased damages pursuant to 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action pursuant to 35 U.S.C. § 285.

67. Tesla's acts of infringement have caused damages to Conversant, and Conversant is entitled to recover from Tesla the damages sustained by Conversant as a result of Tesla's wrongful acts in an amount to be determined at trial.

COUNT 2—INFRINGEMENT OF THE '357 PATENT

68. Conversant incorporates by reference the allegations set forth in Paragraphs 1–67 of this Complaint as though fully set forth herein.

69. In violation of 35 U.S.C. § 271(a), Tesla is and has been directly infringing one or more of the '357 Patent's claims, including at least Claim 29, by making, using, offering to sell, and/or selling in the United States, and/or importing into the United States, without authority, products that support 3G and/or 4G/LTE connectivity, including without limitation the Tesla Standard-Compliant Products as defined above. Each of the Tesla Standard-Compliant Products comprises hardware and software components that together practice every element of one or more claims of the '357 Patent, including at least Claim 29. These components include those hardware and software components that enable the set of wireless cellular communications functionalities known as 3G and/or 4G/LTE and implement 3G and/or 4G/LTE in compliance with the requirements of the technical standards applicable to mobile communications, including the technical standards promulgated by 3GPP and various subsequent releases and versions thereof. These components enable the Tesla Standard-Compliant Products to perform 3G and/or 4G/LTE communications functionality.

70. It is necessary to practice one or more of the claims of the '357 Patent to comply with the requirements of certain standards applicable to mobile communications. For example, it

is necessary to practice at least Claim 29 from the '357 Patent to comply with certain 3G and/or 4G/LTE standards.

71. The Tesla Standard-Compliant Products comply with the applicable standards covered by the claims of the '357 Patent.

72. The Tesla Standard-Compliant Products are capable of performing, and when used do in fact perform, the method of claim 29 of the '357 Patent.

73. The applicable standards covered by the claims of the '357 Patent describe, at least, performing the method of claim 29 of the '357 Patent.

74. By way of example, Claim 29 of the '357 Patent requires a method including the step of "receiving, by a mobile station, a pre-notification information that at least partially identifies a multimedia broadcast/multicast service bearer service that is to be notified."

75. The applicable standards covered by the claims of the '357 Patent, including but not limited to 3GPP TS 36.300 V14.5.0 (2017-12), describe a method including the step of receiving, by a mobile station, a pre-notification information that at least partially identifies a multimedia broadcast/multicast service bearer service that is to be notified:

8 E-UTRAN identities

....

8.4 MBMS related identities

The following identities are used for SC-PTM transmission:

- SC-RNTI: Identifies transmissions of the SC-MCCH, and for NB-IoT UEs, BL UEs or UEs in enhanced coverage identifies SC-MCCH change notification;
- SC-N-RNTI: Identifies SC-MCCH change notification for UEs other than NB-IoT UEs, BL UEs or UEs in enhanced coverage;

- G-RNTI: Identifies transmissions of a SC-MTCH, and for NB-IoT UEs, BL UEs or UEs in enhanced coverage identifies SC-MCCH change notification.
-
- 15 MBMS**
-
- 15.3 MBMS Transmission**
- 15.3.1 General**

Transmission of a MBMS in E-UTRAN uses either MBSFN transmission or SC-PTM transmission. The MCE makes the decision on whether to use SC-PTM or MBSFN for each MBMS session.

- 15.3.2 Single-cell transmission**

Single-cell transmission of MBMS is characterized by:

 - MBMS is transmitted in the coverage of a single cell;
 - One SC-MCCH and one or more SC-MTCH(s) are mapped on DL-SCH;
 - Scheduling is done by the eNB;
 - SC-MCCH and SC-MTCH transmissions are each indicated by a logical channel specific RNTI on PDCCH (there is a one-to-one mapping between TMGI and G-RNTI used for the reception of the DL-SCH to which a SC-MTCH is mapped);
 - A single transmission is used for DL-SCH (i.e. neither blind HARQ repetitions nor RLC quick repeat) on which SC-MCCH or SC-MTCH is mapped;
 - SC-MCCH and SC-MTCH use the RLC-UM mode.
 -

15.3.5a SC-MCCH structure

The following principles govern the SC-MCCH structure:

....

- For NB-IoT UEs, BL UEs or UEs in enhanced coverage:
 - Two notification mechanisms are used to announce changes of SC-MCCH due to Session Start:
 - A notification is sent in the DCI with SC-RNTI scheduling SC-MCCH. When the UE receives the notification, it acquires the SC-MCCH in the same modification period;
 - A notification is sent in the DCI with G-RNTI scheduling SC-MTCH. When the UE receives the notification, it acquires the SC-MCCH in the next modification period;
 - One notification mechanism is used to announce changes of SC-MCCH for the ongoing service:
 - The notification is sent in the DCI with G-RNTI scheduling SC-MTCH. When the UE receives the notification, it acquires the SC-MCCH in the next modification period.

(3GPP TS 36.300 V14.5.0 (2017-12), at 89, 91, 157, 162, 165.)

76. In addition, the applicable standards covered by the claims of the '357 Patent, including but not limited to 3GPP TS 36.331 V14.5.1 (2018-01), describe a method including the step of receiving, by a mobile station, a pre-notification information that at least partially identifies a multimedia broadcast/multicast service bearer service that is to be notified:

5 Procedures

....

5.8a SC-PTM

5.8a.1 Introduction

5.8a.1.1 General

SC-PTM control information is provided on a specific logical channel: the SC-MCCH. The SC-MCCH carries the *SCPTMConfiguration* message which indicates the MBMS sessions that are ongoing as well as the (corresponding) information on when each session may be scheduled, i.e. scheduling period, scheduling window and start offset. The *SCPTMConfiguration* message also provides information about the neighbour cells transmitting the MBMS sessions which are ongoing on the current cell. In this release of the specification, an SC-PTM capable UE is only required to support reception of a single MBMS service at a time, and reception of more than one MBMS service in parallel is left for UE implementation.

....

5.8a.1.3 SC-MCCH information validity and notification of changes

....

When the network changes SC-MTCH specific information e.g. start of new MBMS service(s) transmitted using SC-PTM or change of ongoing MBMS service(s) transmitted using SC-PTM, it notifies the BL UEs, UEs in CE or NB-IoT UEs in the PDCCH which schedules the SC-MTCH in the current modification period. The notification is transmitted with a 2 bit bitmap. The LSB in the 2-bit bitmap, when set to '1', indicates the change of the on-going MBMS service and the MSB in the 2-bit bitmap, when set to '1', indicates the start of new MBMS service(s), see TS 36.212 [22, 5.3.3.1.12 & 5.3.3.1.13 & 6.4.3.2]. In the case the network changes an on-going SC-MTCH transmission in the next modification period, it notifies the BL UEs, UEs in CE or NB-IoT UEs in the PDCCH which schedules this SC-MTCH in the current modification period. In the case the network starts new MBMS service(s) transmitted using SC-PTM, the network notifies the UEs which have on-going SC-MTCH in the PDCCH scheduling each of the SC-MTCH. Upon receiving such notification, a BL UE, UE in CE or NB-IoT UE acquires the new SC-MCCH information at the start of the next modification period. The BL UE, UE in CE or NB-IoT UE applies the previously acquired SC-MCCH information until the BL UE, UE in CE or NB-IoT UE acquires the new SC-MCCH information.

....

6 Protocol data units, formats and parameters (tabular & ASN.1)

....

6.3 RRC information elements

....

6.3.7a SC-PTM information elements

- SC-MTCH-InfoList

The IE *SC-MTCH-InfoList* provides the list of ongoing MBMS sessions transmitted via SC-MRB and for each MBMS session, the associated G-RNTI and scheduling information.

SC-MTCH-InfoList information element

```
-- ASN1START

SC-MTCH-InfoList-r13 ::=           SEQUENCE (SIZE (0..maxSC-MTCH-r13)) OF SC-MTCH-Info-r13

SC-MTCH-Info-r13 ::=           SEQUENCE {
    mbmsSessionInfo-r13,
    g-RNTI-r13
    sc-mtch-schedulingInfo-r13
    OP
    sc-mtch-neighbourCell-r13
    Need OP
    ...
    [[ p-a-r13
    ...
    ]]
}

MBMSSessionInfo-r13 ::=           SEQUENCE {
    tmgi-r13
    sessionId-r13
}
```

(3GPP TS 36.331 V14.5.1 (2018-01), at 35, 206–07, 245, 321, 568.)

77. The method of Claim 29 of the '357 Patent requires the step of “determining if the pre-notification information identifies a multimedia broadcast/multicast service bearer service for a multimedia broadcast/multicast service session to be received by the mobile station.”

78. The applicable standards covered by the claims of the '357 Patent, including but not limited to 3GPP TS 36.331 V14.5.1 (2018-01), describe the step of determining if the pre-notification information identifies a multimedia broadcast/multicast service bearer service for a multimedia broadcast/multicast service session to be received by the mobile station:

5 Procedures

....

5.8a SC-PTM

5.8a.1 Introduction

....

5.8a.1.3 SC-MCCH information validity and notification of changes

....

When the network changes SC-MTCH specific information e.g. start of new MBMS service(s) transmitted using SC-PTM or change of ongoing MBMS service(s) transmitted using SC-PTM, it notifies the BL UEs, UEs in CE or NB-IoT UEs in the PDCCH which schedules the SC-MTCH in the current modification period. The notification is transmitted with a 2 bit bitmap. The LSB in the 2-bit bitmap, when set to '1', indicates the change of the on-going MBMS service and the MSB in the 2-bit bitmap, when set to '1', indicates the start of new MBMS service(s), see TS 36.212 [22, 5.3.3.1.12 & 5.3.3.1.13 & 6.4.3.2]. In the case the network changes an on-going SC-MTCH transmission in the next modification period, it notifies the BL UEs, UEs in CE or NB-IoT UEs in the PDCCH which schedules this SC-MTCH in the current modification period. In the case the network starts new MBMS service(s) transmitted using SC-PTM, the network notifies the UEs which have on-going SC-MTCH in the PDCCH scheduling each of the SC-MTCH. Upon receiving such notification, a BL UE, UE in CE or NB-IoT UE acquires the new SC-MCCH information at the start of the next modification period. The BL UE, UE in CE or NB-IoT UE applies the previously acquired SC-MCCH information until the BL UE, UE in CE or NB-IoT UE acquires the new SC-MCCH information.

....

6 Protocol data units, formats and parameters (tabular & ASN.1)

....

6.3 RRC information elements

....

6.3.7a SC-PTM information elements

....

SC-MTCH-InfoList field descriptions	
<i>drx-InactivityTimerSCPTM</i>	Timer for SC-MTCH in TS 36.321 [6]. Value in number of PDCCH sub-frames. Value psf0 corresponds to 0 PDCCH sub-frame and behaviour as specified in 7.3.2 applies, psf1 corresponds to 1 PDCCH sub-frame, psf2 corresponds to 2 PDCCH sub-frames and so on.
<i>g-RNTI</i>	G-RNTI used to scramble the scheduling and transmission of a SC-MTCH.

(3GPP TS 36.331 V14.5.1 (2018-01), at 35, 206–07, 245, 321, 568–69.)

79. In addition, The applicable standards covered by the claims of the '357 Patent, including but not limited to 3GPP TS 36.300 V14.5.0 (2017-12), describe the step of determining if the pre-notification information identifies a multimedia broadcast/multicast service bearer service for a multimedia broadcast/multicast service session to be received by the mobile station:

15 MBMS

....

15.3 MBMS Transmission

15.3.1 General

Transmission of a MBMS in E-UTRAN uses either MBSFN transmission or SC-PTM transmission. The MCE makes the decision on whether to use SC-PTM or MBSFN for each MBMS session.

15.3.2 Single-cell transmission

Single-cell transmission of MBMS is characterized by:

- MBMS is transmitted in the coverage of a single cell;
- One SC-MCCH and one or more SC-MTCH(s) are mapped on DL-SCH;
- Scheduling is done by the eNB;
- SC-MCCH and SC-MTCH transmissions are each indicated by a logical channel specific RNTI on PDCCH (there is a one-to-one mapping between TMGI and G-RNTI used for the reception of the DL-SCH to which a SC-MTCH is mapped);
- A single transmission is used for DL-SCH (i.e. neither blind HARQ repetitions nor RLC quick repeat) on which SC-MCCH or SC-MTCH is mapped;
- SC-MCCH and SC-MTCH use the RLC-UM mode.

....

15.3.5a SC-MCCH structure

The following principles govern the SC-MCCH structure:

....

- For NB-IoT UEs, BL UEs or UEs in enhanced coverage:
 - Two notification mechanisms are used to announce changes of SC-MCCH due to Session Start:
 - A notification is sent in the DCI with SC-RNTI scheduling SC-MCCH. When the UE receives the notification, it acquires the SC-MCCH in the same modification period;
 - A notification is sent in the DCI with G-RNTI scheduling SC-MTCH. When the UE receives the notification, it acquires the SC-MCCH in the next modification period;
 - One notification mechanism is used to announce changes of SC-MCCH for the ongoing service:
 - The notification is sent in the DCI with G-RNTI scheduling SC-MTCH. When the UE receives the notification, it acquires the SC-MCCH in the next modification period.

(3GPP TS 36.300 V14.5.0 (2017-12), at 157, 162, 165.)

80. The method of Claim 29 of the '357 Patent requires the step of "wherein the pre-notification information comprises at least a portion of a temporary mobile group identity."

81. The applicable standards covered by the claims of the '357 Patent, including but not limited to 3GPP TS 36.300 V14.5.0 (2017-12), describe the step of wherein the pre-notification information comprises at least a portion of a temporary mobile group identity:

15 MBMS

....

15.3 MBMS Transmission

15.3.1 General

Transmission of a MBMS in E-UTRAN uses either MBSFN transmission or SC-PTM transmission. The MCE makes the decision on whether to use SC-PTM or MBSFN for each MBMS session.

15.3.2 Single-cell transmission

Single-cell transmission of MBMS is characterized by:

- MBMS is transmitted in the coverage of a single cell;
- One SC-MCCH and one or more SC-MTCH(s) are mapped on DL-SCH;
- Scheduling is done by the eNB;
- SC-MCCH and SC-MTCH transmissions are each indicated by a logical channel specific RNTI on PDCCH (there is a one-to-one mapping between TMGI and G-RNTI used for the reception of the DL-SCH to which a SC-MTCH is mapped);
- A single transmission is used for DL-SCH (i.e. neither blind HARQ repetitions nor RLC quick repeat) on which SC-MCCH or SC-MTCH is mapped;
- SC-MCCH and SC-MTCH use the RLC-UM mode.

....

15.3.5a SC-MCCH structure

The following principles govern the SC-MCCH structure:

....

- For NB-IoT UEs, BL UEs or UEs in enhanced coverage:
 - Two notification mechanisms are used to announce changes of SC-MCCH due to Session Start:
 - A notification is sent in the DCI with SC-RNTI scheduling SC-MCCH. When the UE receives the notification, it acquires the SC-MCCH in the same modification period;
 - A notification is sent in the DCI with G-RNTI scheduling SC-MTCH. When the UE receives the notification, it acquires the SC-MCCH in the next modification period;
 - One notification mechanism is used to announce changes of SC-MCCH for the ongoing service:
 - The notification is sent in the DCI with G-RNTI scheduling SC-MTCH. When the UE receives the notification, it acquires the SC-MCCH in the next modification period.

(3GPP TS 36.300 V14.5.0 (2017-12), at 157, 162, 165.)

82. Upon information and belief, the Tesla Standard-Compliant Products comply or have complied with the applicable standards covered by the claims of the '357 Patent, including without limitation 3G and/or 4G/LTE, and therefore infringe the '357 Patent, including at least Claim 29.

83. The Tesla Standard-Compliant Products have complied, and continue to comply, with 3GPP TS 36.300 V14.5.0 (2017-12).

84. The Tesla Standard-Compliant Products have complied, and continue to comply, with 3GPP TS 36.331 V14.5.1 (2018-01).

85. The Tesla Standard-Compliant Products have complied, and continue to comply, with 3GPP TS 23.003 V14.6.0 (2017-12).

86. Tesla is infringing claims of the '357 Patent, including at least Claim 29, literally and/or pursuant to the doctrine of equivalents.

87. In violation of 35 U.S.C. § 271(b), Tesla is and has been infringing one or more of the '357 Patent's claims, including at least Claim 29, indirectly by inducing the infringement of the '357 Patent's claims by third parties, including without limitation manufacturers, resellers, and/or users of Tesla's Standard-Compliant Products, in this District, and elsewhere in the United States. Direct infringement is the result of activities performed by users of the Tesla Standard-Compliant Products in accordance with the claims of the '357 Patent.

88. Tesla's affirmative acts of selling the Tesla's Standard-Compliant Products, causing the Tesla Standard-Compliant Products to be manufactured and distributed, providing instructive materials and information concerning operation and use of the Tesla Standard-Compliant Products, and maintenance/service for such products, induced users of the Tesla Standard-Compliant Products to infringe the '357 Patent's claims by using the vehicles in their normal and customary way. By and through these acts, Tesla knowingly and specifically intends the users of the Tesla Standard-Compliant Products to infringe the '357 Patent's claims. Tesla (1) knows and knew of the '357 Patent since at least prior to the filing of this lawsuit, (2) performs affirmative acts that constitute induced infringement, and (3) knows or should know that those acts would induce actual infringement of one or more of the '357 Patent's claims by users of the Tesla Standard-Compliant Products.

89. In violation of 35 U.S.C. § 271(c), Tesla is and has been infringing one or more of the '357 Patent's claims, including at least Claim 29, indirectly by contributing to the infringement of the '357 Patent's claims by third parties, including without limitation manufacturers, resellers, and/or users of the Tesla Standard-Compliant Products, in this District, and elsewhere in the United

States. Direct infringement is the result of activities performed by manufacturers, resellers, and/or users in relation to the Tesla Standard-Compliant Products, including without limitation use of the Tesla Standard-Compliant Products.

90. Upon information and belief, Tesla at least installs, configures, and sells Tesla Standard-Compliant Products with distinct and separate hardware and/or software components especially made or especially adapted to practice the invention claimed in the '357 Patent. That hardware and/or software is a material part of the invention. That hardware and/or software is not a staple article or commodity of commerce because it is specifically designed to perform the claimed functionality. Any other use of that hardware and/or software would be unusual, far-fetched, illusory, impractical, occasional, aberrant, or experimental.

91. Therefore, upon information and belief, Tesla is making, using, offering to sell, and/or selling in the United States, and/or importing into the United States, without authority, a component of a patented machine, manufacture, combination or composition, or a material or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of a patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use.

92. As explained above, Tesla had actual notice of the '357 Patent prior to this lawsuit being filed and had knowledge of the infringing nature of its activities. Nevertheless, Tesla continued its infringing activities.

93. Instead of taking a FRAND license to Conversant's patent portfolio, Tesla continues, in bad faith, to directly and indirectly infringe Conversant's patents, including the

'357 Patent by making, using, offering for sale and selling infringing Tesla Standard-Compliant Products, and inducing and contributing to the infringement of others.

94. Therefore, upon information and belief, Tesla's infringement of the '357 Patent's claims, including at least Claim 29, has been and continues to be willful entitling Conversant to increased damages pursuant to 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action pursuant to 35 U.S.C. § 285.

95. Tesla's acts of infringement have caused damages to Conversant, and Conversant is entitled to recover from Tesla the damages sustained by Conversant as a result of Tesla's wrongful acts in an amount to be determined at trial.

COUNT 3—INFRINGEMENT OF THE '119 PATENT

96. Conversant incorporates by reference the allegations set forth in Paragraphs 1–95 of this Complaint as though fully set forth herein.

97. In violation of 35 U.S.C. § 271(a), Tesla is and has been directly infringing one or more of the '119 Patent's claims, including at least Claim 1, by making, using, offering to sell, and/or selling in the United States, and/or importing into the United States, without authority, products that support 3G and/or 4G/LTE connectivity, including without limitation the Tesla Standard-Compliant Products as defined above. Each of the Tesla Standard-Compliant Products comprises hardware and software components that together practice every element of one or more claims of the '119 Patent, including at least Claim 1. These components include those hardware and software components that enable the set of wireless cellular communications functionalities known as 3G and/or 4G/LTE and implement 3G and/or 4G/LTE in compliance with the requirements of the technical standards applicable to mobile communications, including the technical standards promulgated by 3GPP and various subsequent releases and versions thereof.

These components enable the Tesla Standard-Compliant Products to perform 3G and/or 4G/LTE communications functionality.

98. It is necessary to practice one or more of the claims of the ‘119 Patent to comply with the requirements of certain standards applicable to mobile communications. For example, it is necessary to practice at least Claim 1 from the ‘119 Patent to comply with certain 3G and/or 4G/LTE standards.

99. The Tesla Standard-Compliant Products comply with the applicable standards covered by the claims of the ‘119 Patent.

100. The Tesla Standard-Compliant Products meet the limitations of Claim 1 of the ‘119 Patent.

101. The applicable standards covered by the claims of the ‘119 Patent describe, at least, the mobile station of Claim 1 of the ‘119 Patent.

102. By way of example, Claim 1 of the ‘119 Patent requires a mobile station comprising “at least one processor; and at least one memory configured to, with the at least one processor, cause the mobile station to: receive control information signalled from a radio access network over a physical layer downlink shared control channel, the control information comprising transport format parameters used on a shared data channel corresponding to the shared control channel and an indicator indicating whether the transport format parameters are to be stored by the mobile station.”

103. The applicable standards covered by the claims of the ‘119 Patent, including but not limited to 3GPP TS 36.213 V10.3.0 (2011-09), describe a mobile station comprising at least one processor; and at least one memory configured to, with the at least one processor, cause the mobile station to: receive control information signalled from a radio access network over a

physical layer downlink shared control channel, the control information comprising transport format parameters used on a shared data channel corresponding to the shared control channel and an indicator indicating whether the transport format parameters are to be stored by the mobile station:

7 Physical downlink shared channel related procedures

....

7.1 UE procedure for receiving the physical downlink shared channel

Except the subframes indicated by the higher layer parameter *mbsfn-SubframeConfigList*, a UE shall upon detection of a PDCCH of a serving cell with DCI format 1, 1A, 1B, 1C, 1D, 2, 2A, 2B or 2C intended for the UE in a subframe, decode the corresponding PDSCH in the same subframe with the restriction of the number of transport blocks defined in the higher layers.

....

If a UE is configured by higher layers to decode PDCCH with CRC scrambled by the SPS C-RNTI, the UE shall decode the PDCCH on the primary cell and any corresponding PDSCH on the primary cell according to the respective combinations defined in Table 7.1-6. The same PDSCH related configuration applies in the case that a PDSCH is transmitted without a corresponding PDCCH. The scrambling initialization of PDSCH corresponding to these PDCCHs and PDSCH without a corresponding PDCCH is by SPS C-RNTI.

(3GPP TS 36.213 V10.3.0 (2011-09), at 23, 26.)

104. In addition, the applicable standards covered by the claims of the '119 Patent, including but not limited to 3GPP TS 36.212 V11.4.0 (2013-12), describe a mobile station at least one processor; and at least one memory configured to, with the at least one processor, cause the mobile station to: receive control information signalled from a radio access network over a physical layer downlink shared control channel, the control information comprising transport format parameters used on a shared data channel corresponding to the shared control channel and an indicator indicating whether the transport format parameters are to be stored by the mobile station:

4 Mapping to physical channels

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4.2 Downlink

Table 4.2-1 specifies the mapping of the downlink transport channels to their corresponding physical channels. Table 4.2-2 specifies the mapping of the downlink control channel information to its corresponding physical channel.

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Table 4.2-2

Control information	Physical Channel
CFI	PCFICH
HI	PHICH
DCI	PDCCH, EPDCCH

5 Channel coding, multiplexing and interleaving

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5.3 Downlink transport channels and control information

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5.3.3 Downlink control information

....

5.3.3.1 DCI formats

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5.3.3.1.2 Format 1

DCI format 1 is used for the scheduling of one PDSCH codeword in one cell.

The following information is transmitted by means of the DCI format 1:

- Carrier indicator – 0 or 3 bits. This field is present according to the definitions in [3].
- Resource allocation header (resource allocation type 0 / type 1) – 1 bit as defined in section 7.1.6 of [3]

If downlink bandwidth is less than or equal to 10 PRBs, there is no resource allocation header and resource allocation type 0 is assumed.

- Resource block assignment:
 - For resource allocation type 0 as defined in section 7.1.6.1 of [3]:

- $\lceil N_{\text{RB}}^{\text{DL}} / P \rceil$ bits provide the resource allocation

- For resource allocation type 1 as defined in section 7.1.6.2 of [3]:

- $\lceil \log_2(P) \rceil$ bits of this field are used as a header specific to this resource allocation type to indicate the selected resource blocks subset

- 1 bit indicates a shift of the resource allocation span

- $(\lceil N_{\text{RB}}^{\text{DL}} / P \rceil - \lceil \log_2(P) \rceil - 1)$ bits provide the resource allocation

where the value of P depends on the number of DL resource blocks as indicated in section 7.1.6.1 of [3]

- Modulation and coding scheme – 5 bits as defined in section 7.1.7 of [3]
- HARQ process number – 3 bits (FDD), 4 bits (TDD)
- New data indicator – 1 bit
- Redundancy version – 2 bits
- TPC command for PUCCH – 2 bits as defined in section 5.1.2.1 of [3]

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5.3.3.1.3 Format 1A

DCI format 1A is used for the compact scheduling of one PDSCH codeword in one cell and random access procedure initiated by a PDCCH order. The DCI corresponding to a PDCCH order can be carried by PDCCH or EPDCCH.

The following information is transmitted by means of the DCI format 1A:

- Carrier indicator – 0 or 3 bits. This field is present according to the definitions in [3].
- Flag for format0/format1A differentiation – 1 bit, where value 0 indicates format 0 and value 1 indicates format 1A

Format 1A is used for random access procedure initiated by a PDCCH order only if format 1A CRC is scrambled with C-RNTI and all the remaining fields are set as follows:

- Localized/Distributed VRB assignment flag – 1 bit is set to ‘0’
- Resource block assignment – bits, where all bits shall be set to 1
- Preamble Index – 6 bits
- PRACH Mask Index – 4 bits, [5]
- All the remaining bits in format 1A for compact scheduling assignment of one PDSCH codeword are set to zero

Otherwise,

- Localized/Distributed VRB assignment flag – 1 bit as defined in 7.1.6.3 of [3]
- Resource block assignment – $\lceil \log_2(N_{\text{RB}}^{\text{DL}}(N_{\text{RB}}^{\text{DL}} + 1)/2) \rceil$ bits as defined in section 7.1.6.3 of [3]:
 - For localized VRB:
 - $\lceil \log_2(N_{\text{RB}}^{\text{DL}}(N_{\text{RB}}^{\text{DL}} + 1)/2) \rceil$ bits provide the resource allocation
 - For distributed VRB:
 - If $N_{\text{RB}}^{\text{DL}} < 50$ or if the format 1A CRC is scrambled by RA-RNTI, P-RNTI, or SI-RNTI
 - $\lceil \log_2(N_{\text{RB}}^{\text{DL}}(N_{\text{RB}}^{\text{DL}} + 1)/2) \rceil$ bits provide the resource allocation

- Else
 - 1 bit, the MSB indicates the gap value, where value 0 indicates $N_{\text{gap}} = N_{\text{gap},1}$ and value 1 indicates $N_{\text{gap}} = N_{\text{gap},2}$
 - $(\lceil \log_2(N_{\text{RB}}^{\text{DL}}(N_{\text{RB}}^{\text{DL}} + 1)/2) \rceil - 1)$ bits provide the resource allocation, where N_{gap} is defined in [2].
 - Modulation and coding scheme – 5bits as defined in section 7.1.7 of [3]
 - HARQ process number – 3 bits (FDD) , 4 bits (TDD)
 - New data indicator – 1 bit

(3GPP TS 36.212 V11.4.0 (2013-12), at 7–8, 54, 58–61.)

105. In addition, the applicable standards covered by the claims of the '119 Patent, including but not limited to 3GPP TS 36.321 V10.3.0 (2011-09), describe a mobile station comprising at least one processor; and at least one memory configured to, with the at least one processor, cause the mobile station to: receive control information signalled from a radio access network over a physical layer downlink shared control channel, the control information comprising transport format parameters used on a shared data channel corresponding to the shared control channel and an indicator indicating whether the transport format parameters are to be stored by the mobile station:

5 MAC procedures

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5.3 DL-SCH data transfer

5.3.1 DL Assignment reception

Downlink assignments transmitted on the PDCCH indicate if there is a transmission on a DL-SCH for a particular UE and provide the relevant HARQ information.

When the UE has a C-RNTI, Semi-Persistent Scheduling C-RNTI, or Temporary C-RNTI, the UE shall for each TTI during which it monitors PDCCH and for each Serving Cell:

- if a downlink assignment for this TTI and this Serving Cell has been received on the PDCCH for the UE's C-RNTI, or Temporary C RNTI:
 - if this is the first downlink assignment for this Temporary C-RNTI:
 - consider the NDI to have been toggled.
 - if the downlink assignment is for UE's C-RNTI and if the previous downlink assignment indicated to the HARQ entity of the same HARQ process was either a downlink assignment received for the UE's Semi-Persistent Scheduling C-RNTI or a configured downlink assignment:
 - consider the NDI to have been toggled regardless of the value of the NDI.
 - indicate the presence of a downlink assignment and deliver the associated HARQ information to the HARQ entity for this TTI.
- else, if this Serving Cell is the PCell and a downlink assignment for this TTI has been received for the PCell on the PDCCH of the PCell for the UE's Semi-Persistent Scheduling C-RNTI:
 - if the NDI in the received HARQ information is 1:
 - consider the NDI not to have been toggled;
 - indicate the presence of a downlink assignment and deliver the associated HARQ information to the HARQ entity for this TTI.
 - else, if the NDI in the received HARQ information is 0:
 - if PDCCH contents indicate SPS release:
 - clear the configured downlink assignment (if any);
 - if *timeAlignmentTimer* is running:
 - indicate a positive acknowledgement for the downlink SPS release to the physical layer.
 - else:
 - store the downlink assignment and the associated HARQ information as configured downlink assignment;
 - initialise (if not active) or re-initialise (if already active) the configured downlink assignment to start in this TTI and to recur according to rules in subclause 5.10.1;

- set the HARQ Process ID to the HARQ Process ID associated with this TTI;
- consider the NDI bit to have been toggled;
- indicate the presence of a configured downlink assignment and deliver the stored HARQ information to the HARQ entity for this TTI.

(3GPP TS 36.321 V10.3.0 (2011-09), at 12, 18–19.)

106. Claim 1 of the '119 Patent requires a mobile station comprising “at least one processor; and at least one memory configured to, with the at least one processor, cause the mobile station to . . . receive data packets on the shared data channel using the control information, wherein the mobile station is configured to” carry out certain capabilities.

107. The applicable standards covered by the claims of the '119 Patent, including but not limited to 3GPP TS 36.213 V10.3.0 (2011-09), describe a mobile station comprising at least one processor; and at least one memory configured to, with the at least one processor, cause the mobile station to . . . receive data packets on the shared data channel using the control information, wherein the mobile station is configured to” carry out certain capabilities:

7 Physical downlink shared channel related procedures

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7.1 UE procedure for receiving the physical downlink shared channel

Except the subframes indicated by the higher layer parameter *mbsfn-SubframeConfigList*, a UE shall upon detection of a PDCCH of a serving cell with DCI format 1, 1A, 1B, 1C, 1D, 2, 2A, 2B or 2C intended for the UE in a subframe, decode the corresponding PDSCH in the same subframe with the restriction of the number of transport blocks defined in the higher layers.

(3GPP TS 36.213 V10.3.0 (2011-09), at 23.)

108. Claim 1 of the '119 Patent requires a mobile station configured to “determine, using a mask for the mobile station, whether first control information is present for the mobile station, and in the event that the first control information is present for the mobile station, receiving first

said data packets on the shared data channel using the first control information and storing the transport format parameters from the first control information.”

109. The applicable standards covered by the claims of the ‘119 Patent, including but not limited to 3GPP TS 36.321 V10.3.0 (2011-09), describe a mobile station configured to determine, using a mask for the mobile station, whether first control information is present for the mobile station, and in the event that the first control information is present for the mobile station, receiving first said data packets on the shared data channel using the first control information and storing the transport format parameters from the first control information:

5 MAC procedures

....

5.3 DL-SCH data transfer

5.3.1 DL Assignment reception

Downlink assignments transmitted on the PDCCH indicate if there is a transmission on a DL-SCH for a particular UE and provide the relevant HARQ information.

When the UE has a C-RNTI, Semi-Persistent Scheduling C-RNTI, or Temporary C-RNTI, the UE shall for each TTI during which it monitors PDCCH and for each Serving Cell:

- if a downlink assignment for this TTI and this Serving Cell has been received on the PDCCH for the UE's C-RNTI, or Temporary C RNTI:
 - if this is the first downlink assignment for this Temporary C-RNTI:
 - consider the NDI to have been toggled.
 - if the downlink assignment is for UE's C-RNTI and if the previous downlink assignment indicated to the HARQ entity of the same HARQ process was either a downlink assignment received for the UE's Semi-Persistent Scheduling C-RNTI or a configured downlink assignment:
 - consider the NDI to have been toggled regardless of the value of the NDI.
 - indicate the presence of a downlink assignment and deliver the associated HARQ information to the HARQ entity for this TTI.
- else, if this Serving Cell is the PCell and a downlink assignment for this TTI has been received for the PCell on the PDCCH of the PCell for the UE's Semi-Persistent Scheduling C-RNTI:
 - if the NDI in the received HARQ information is 1:
 - consider the NDI not to have been toggled;
 - indicate the presence of a downlink assignment and deliver the associated HARQ information to the HARQ entity for this TTI.
 - else, if the NDI in the received HARQ information is 0:
 - if PDCCH contents indicate SPS release:
 - clear the configured downlink assignment (if any);
 - if *timeAlignmentTimer* is running:
 - indicate a positive acknowledgement for the downlink SPS release to the physical layer.
 - else:
 - store the downlink assignment and the associated HARQ information as configured downlink assignment;
 - initialise (if not active) or re-initialise (if already active) the configured downlink assignment to start in this TTI and to recur according to rules in subclause 5.10.1;

- set the HARQ Process ID to the HARQ Process ID associated with this TTI;
- consider the NDI bit to have been toggled;
- indicate the presence of a configured downlink assignment and deliver the stored HARQ information to the HARQ entity for this TTI.

(3GPP TS 36.321 V10.3.0 (2011-09), at 12, 18.)

110. In addition, the applicable standards covered by the claims of the '119 Patent, including but not limited to 3GPP TS 36.213 V10.3.0 (2011-09), describe a mobile station configured to determine, using a mask for the mobile station, whether first control information is present for the mobile station, and in the event that the first control information is present for the mobile station, receiving first said data packets on the shared data channel using the first control information and storing the transport format parameters from the first control information:

7 Physical downlink shared channel related procedures

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7.1 UE procedure for receiving the physical downlink shared channel

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If a UE is configured by higher layers to decode PDCCH with CRC scrambled by the SPS C-RNTI, the UE shall decode the PDCCH on the primary cell and any corresponding PDSCH on the primary cell according to the respective combinations defined in Table 7.1-6. The same PDSCH related configuration applies in the case that a PDSCH is transmitted without a corresponding PDCCH. The scrambling initialization of PDSCH corresponding to these PDCCHs and PDSCH without a corresponding PDCCH is by SPS C-RNTI.

When a UE is configured in transmission mode 7, scrambling initialization of UE-specific reference signals corresponding to these PDCCHs is by SPS C-RNTI.

When a UE is configured in transmission mode 9, in the subframes indicated by the higher layer parameter mbsfn-SubframeConfigList except in subframes for the serving cell

- indicated by higher layers to decode PMCH or,
- configured by higher layers to be part of a positioning reference signal occasion and the positioning reference signal occasion is only configured within MBSFN subframes and the cyclic prefix length used in subframe #0 is normal cyclic prefix,

the UE shall upon detection of a PDCCH with CRC scrambled by the SPS C-RNTI with DCI format 1A or 2C or for a configured PDSCH without PDCCH intended for the UE, decode the corresponding PDSCH in the same subframe.

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9 Physical downlink control channel procedures

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9.2 PDCCH validation for semi-persistent scheduling

A UE shall validate a Semi-Persistent Scheduling assignment PDCCH only if all the following conditions are met:

- the CRC parity bits obtained for the PDCCH payload are scrambled with the Semi-Persistent Scheduling C-RNTI
- the new data indicator field is set to '0'. In case of DCI formats 2, 2A, 2B and 2C, the new data indicator field refers to the one for the enabled transport block.

Validation is achieved if all the fields for the respective used DCI format are set according to Table 9.2-1 or Table 9.2-1A.

If validation is achieved, the UE shall consider the received DCI information accordingly as a valid semi-persistent activation or release.

If validation is not achieved, the received DCI format shall be considered by the UE as having been received with a non-matching CRC.

(3GPP TS 36.213 V10.3.0 (2011-09), at 23, 26–27, 88, 91–92.)

111. Claim 1 of the '119 Patent requires a mobile station configured to "after receiving the first data packets, determine, using the mask for the mobile station, whether second control

information is present for the mobile station, and in the event that the second control information is not present for the mobile station, receiving second said data packets on the shared data channel using the stored transport format parameters from the first control information.”

112. The applicable standards covered by the claims of the '119 Patent, including but not limited to 3GPP TS 36.321 V10.3.0 (2011-09), describe a mobile station configured to after receiving the first data packets, determine, using the mask for the mobile station, whether second control information is present for the mobile station, and in the event that the second control information is not present for the mobile station, receiving second said data packets on the shared data channel using the stored transport format parameters from the first control information:

5 MAC procedures

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5.10 Semi-Persistent Scheduling

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5.10.1 Downlink

After a Semi-Persistent downlink assignment is configured, the UE shall consider that the assignment recurs in each subframe for which:

- $(10 * \text{SFN} + \text{subframe}) = [(10 * \text{SFN}_{\text{start time}} + \text{subframe}_{\text{start time}}) + N * \text{semiPersistSchedIntervalDL}] \text{ modulo } 10240$, for all $N > 0$.

Where $\text{SFN}_{\text{start time}}$ and $\text{subframe}_{\text{start time}}$ are the SFN and subframe, respectively, at the time the configured downlink assignment were (re-)initialised.

(3GPP TS 36.321 V10.3.0 (2011-09), at 31–32.)

113. In addition, the applicable standards covered by the claims of the '119 Patent, including but not limited to 3GPP TS 36.213 V10.3.0 (2011-09), describe a mobile station configured to after receiving the first data packets, determine, using the mask for the mobile station, whether second control information is present for the mobile station, and in the event that the second control information is not present for the mobile station, receiving second said data

packets on the shared data channel using the stored transport format parameters from the first control information:

7 Physical downlink shared channel related procedures

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7.1 UE procedure for receiving the physical downlink shared channel

....

If a UE is configured by higher layers to decode PDCCH with CRC scrambled by the SPS C-RNTI, the UE shall decode the PDCCH on the primary cell and any corresponding PDSCH on the primary cell according to the respective combinations defined in Table 7.1-6. The same PDSCH related configuration applies in the case that a PDSCH is transmitted without a corresponding PDCCH. The scrambling initialization of PDSCH corresponding to these PDCCHs and PDSCH without a corresponding PDCCH is by SPS C-RNTI.

When a UE is configured in transmission mode 7, scrambling initialization of UE-specific reference signals corresponding to these PDCCHs is by SPS C-RNTI.

When a UE is configured in transmission mode 9, in the subframes indicated by the higher layer parameter *mbsfn-SubframeConfigList* except in subframes for the serving cell

- indicated by higher layers to decode PMCH or,
- configured by higher layers to be part of a positioning reference signal occasion and the positioning reference signal occasion is only configured within MBSFN subframes and the cyclic prefix length used in subframe #0 is normal cyclic prefix,

the UE shall upon detection of a PDCCH with CRC scrambled by the SPS C-RNTI with DCI format 1A or 2C or for a configured PDSCH without PDCCH intended for the UE, decode the corresponding PDSCH in the same subframe.

(3GPP TS 36.213 V10.3.0 (2011-09), at 23, 26–27.)

114. Claim 1 of the '119 Patent requires a mobile station configured to “after receiving the second data packets, determine, using the mask for the mobile station, whether third control information is present for the mobile station, and in the event that the third control information is present for the mobile station, receiving third said data packets on the shared data channel using

the third control information, and storing or not storing the transport format parameters from the third control information according to the indicator in the third control information indicating whether the transport format parameters are to be stored.”

115. The applicable standards covered by the claims of the '119 Patent, including but not limited to 3GPP TS 36.321 V10.3.0 (2011-09), describe a mobile station configured to after receiving the second data packets, determine, using the mask for the mobile station, whether third control information is present for the mobile station, and in the event that the third control information is present for the mobile station, receiving third said data packets on the shared data channel using the third control information, and storing or not storing the transport format parameters from the third control information according to the indicator in the third control information indicating whether the transport format parameters are to be stored:

5 MAC procedures

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5.3 DL-SCH data transfer

5.3.1 DL Assignment reception

Downlink assignments transmitted on the PDCCH indicate if there is a transmission on a DL-SCH for a particular UE and provide the relevant HARQ information.

When the UE has a C-RNTI, Semi-Persistent Scheduling C-RNTI, or Temporary C-RNTI, the UE shall for each TTI during which it monitors PDCCH and for each Serving Cell:

- if a downlink assignment for this TTI and this Serving Cell has been received on the PDCCH for the UE's C-RNTI, or Temporary C RNTI:
 - if this is the first downlink assignment for this Temporary C-RNTI:
 - consider the NDI to have been toggled.
 - if the downlink assignment is for UE's C-RNTI and if the previous downlink assignment indicated to the HARQ entity of the same HARQ process was either a downlink assignment received for the UE's Semi-Persistent Scheduling C-RNTI or a configured downlink assignment:
 - consider the NDI to have been toggled regardless of the value of the NDI.
 - indicate the presence of a downlink assignment and deliver the associated HARQ information to the HARQ entity for this TTI.
- else, if this Serving Cell is the PCell and a downlink assignment for this TTI has been received for the PCell on the PDCCH of the PCell for the UE's Semi-Persistent Scheduling C-RNTI:
 - if the NDI in the received HARQ information is 1:
 - consider the NDI not to have been toggled;
 - indicate the presence of a downlink assignment and deliver the associated HARQ information to the HARQ entity for this TTI.
 - else, if the NDI in the received HARQ information is 0:
 - if PDCCH contents indicate SPS release:
 - clear the configured downlink assignment (if any);
 - if *timeAlignmentTimer* is running:
 - indicate a positive acknowledgement for the downlink SPS release to the physical layer.
 - else:
 - store the downlink assignment and the associated HARQ information as configured downlink assignment;
 - initialise (if not active) or re-initialise (if already active) the configured downlink assignment to start in this TTI and to recur according to rules in subclause 5.10.1;

- set the HARQ Process ID to the HARQ Process ID associated with this TTI;
- consider the NDI bit to have been toggled;
- indicate the presence of a configured downlink assignment and deliver the stored HARQ information to the HARQ entity for this TTI.

(3GPP TS 36.321 V10.3.0 (2011-09), at 12, 18.)

116. Claim 1 of the '119 Patent requires a mobile station "wherein the third control information used for receiving the third data packets is different from the first control information used for receiving the first and second data packets."

117. The applicable standards covered by the claims of the '119 Patent, including but not limited to 3GPP TS 36.321 V10.3.0 (2011-09), describe a mobile station "wherein the third control information used for receiving the third data packets is different from the first control information used for receiving the first and second data packets:

5 MAC procedures

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5.3 DL-SCH data transfer

5.3.1 DL Assignment reception

Downlink assignments transmitted on the PDCCH indicate if there is a transmission on a DL-SCH for a particular UE and provide the relevant HARQ information.

When the UE has a C-RNTI, Semi-Persistent Scheduling C-RNTI, or Temporary C-RNTI, the UE shall for each TTI during which it monitors PDCCH and for each Serving Cell:

- if a downlink assignment for this TTI and this Serving Cell has been received on the PDCCH for the UE's C-RNTI, or Temporary C RNTI:
 - if this is the first downlink assignment for this Temporary C-RNTI:
 - consider the NDI to have been toggled.
 - if the downlink assignment is for UE's C-RNTI and if the previous downlink assignment indicated to the HARQ entity of the same HARQ process was either a downlink assignment received for the UE's Semi-Persistent Scheduling C-RNTI or a configured downlink assignment:
 - consider the NDI to have been toggled regardless of the value of the NDI.
 - indicate the presence of a downlink assignment and deliver the associated HARQ information to the HARQ entity for this TTI.
- else, if this Serving Cell is the PCell and a downlink assignment for this TTI has been received for the PCell on the PDCCH of the PCell for the UE's Semi-Persistent Scheduling C-RNTI:
 - if the NDI in the received HARQ information is 1:
 - consider the NDI not to have been toggled;
 - indicate the presence of a downlink assignment and deliver the associated HARQ information to the HARQ entity for this TTI.
 - else, if the NDI in the received HARQ information is 0:
 - if PDCCH contents indicate SPS release:
 - clear the configured downlink assignment (if any);
 - if *timeAlignmentTimer* is running:
 - indicate a positive acknowledgement for the downlink SPS release to the physical layer.
 - else:
 - store the downlink assignment and the associated HARQ information as configured downlink assignment;
 - initialise (if not active) or re-initialise (if already active) the configured downlink assignment to start in this TTI and to recur according to rules in subclause 5.10.1;

- set the HARQ Process ID to the HARQ Process ID associated with this TTI;
- consider the NDI bit to have been toggled;
- indicate the presence of a configured downlink assignment and deliver the stored HARQ information to the HARQ entity for this TTI.

(3GPP TS 36.321 V10.3.0 (2011-09), at 12, 18.)

118. Upon information and belief, the Tesla Standard-Compliant Products comply or have complied with the applicable standards covered by the claims of the ‘119 Patent, including without limitation 3G and/or 4G/LTE, and therefore infringe the ‘119 Patent, including at least Claim 1.

119. The Tesla Standard-Compliant Products have complied, and continue to comply, with 3GPP TS 36.321 V10.3.0 (2011-09).

120. The Tesla Standard-Compliant Products have complied, and continue to comply, with 3GPP TS 36.213 V10.3.0 (2011-09).

121. The Tesla Standard-Compliant Products have complied, and continue to comply, with 3GPP TS 36.212 V11.4.0 (2013-12).

122. Tesla is infringing claims of the ‘119 Patent, including at least Claim 1, literally and/or pursuant to the doctrine of equivalents.

123. In violation of 35 U.S.C. § 271(b), Tesla is and has been infringing one or more of the ‘119 Patent’s claims, including at least Claim 1, indirectly by inducing the infringement of the ‘119 Patent’s claims by third parties, including without limitation manufacturers, resellers, and/or users of Tesla’s Standard-Compliant Products, in this District, and elsewhere in the United States.

Direct infringement is the result of activities performed by users of the Tesla Standard-Compliant Products in accordance with the claims of the '119 Patent.

124. Tesla's affirmative acts of selling the Tesla's Standard-Compliant Products, causing the Tesla Standard-Compliant Products to be manufactured and distributed, providing instructive materials and information concerning operation and use of the Tesla Standard-Compliant Products, and maintenance/service for such products, induced users of the Tesla Standard-Compliant Products to infringe the '119 Patent's claims by using the vehicles in their normal and customary way. By and through these acts, Tesla knowingly and specifically intends the users of the Tesla Standard-Compliant Products to infringe the '119 Patent's claims. Tesla (1) knows and knew of the '119 Patent since at least prior to the filing of this lawsuit, (2) performs affirmative acts that constitute induced infringement, and (3) knows or should know that those acts would induce actual infringement of one or more of the '119 Patent's claims by users of the Tesla Standard-Compliant Products.

125. In violation of 35 U.S.C. § 271(c), Tesla is and has been infringing one or more of the '119 Patent's claims, including at least Claim 1, indirectly by contributing to the infringement of the '119 Patent's claims by third parties, including without limitation manufacturers, resellers, and/or users of the Tesla Standard-Compliant Products, in this District, and elsewhere in the United States. Direct infringement is the result of activities performed by manufacturers, resellers, and/or users in relation to the Tesla Standard-Compliant Products, including without limitation use of the Tesla Standard-Compliant Products.

126. Upon information and belief, Tesla at least installs, configures, and sells Tesla Standard-Compliant Products with distinct and separate hardware and/or software components especially made or especially adapted to practice the invention claimed in the '119 Patent. That

hardware and/or software is a material part of the invention. That hardware and/or software is not a staple article or commodity of commerce because it is specifically designed to perform the claimed functionality. Any other use of that hardware and/or software would be unusual, far-fetched, illusory, impractical, occasional, aberrant, or experimental.

127. Therefore, upon information and belief, Tesla is making, using, offering to sell, and/or selling in the United States, and/or importing into the United States, without authority, a component of a patented machine, manufacture, combination or composition, or a material or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of a patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use.

128. As explained above, Tesla had actual notice of the '119 Patent prior to this lawsuit being filed and had knowledge of the infringing nature of its activities. Nevertheless, Tesla continued its infringing activities.

129. Instead of taking a FRAND license to Conversant's patent portfolio, Tesla continues, in bad faith, to directly and indirectly infringe Conversant's patents, including the '119 Patent by making, using, offering for sale and selling infringing Tesla Standard-Compliant Products, and inducing and contributing to the infringement of others.

130. Therefore, upon information and belief, Tesla's infringement of the '119 Patent's claims, including at least Claim 1, has been and continues to be willful entitling Conversant to

increased damages pursuant to 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action pursuant to 35 U.S.C. § 285.

131. Tesla's acts of infringement have caused damages to Conversant, and Conversant is entitled to recover from Tesla the damages sustained by Conversant as a result of Tesla's wrongful acts in an amount to be determined at trial.

DAMAGES

132. Tesla's acts of infringement are and were committed intentionally, knowingly, and with callous disregard of Conversant's legitimate rights. Conversant is therefore entitled to and now seeks to recover exemplary damages in an amount not less than the maximum amount permitted by law.

133. As a result of Tesla's acts of infringement, Conversant has suffered actual and consequential damages. To the fullest extent permitted by law, Conversant seeks recovery of damages in an amount to compensate for Tesla's infringement. Conversant further seeks any other damages to which Conversant would be entitled to in law or in equity.

ATTORNEYS' FEES

134. Conversant is entitled to recover reasonable and necessary attorneys' fees under applicable law.

DEMAND FOR JURY TRIAL

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, Conversant demands a trial by jury on all issues so triable.

PRAYER FOR RELIEF

Conversant respectfully requests that the Court enter preliminary and final orders, declarations, and judgments against Tesla as are necessary to provide Conversant with the following relief:

- a. A judgment that Tesla has infringed and/or is infringing one or more claims of the '205 Patent, literally or under the doctrine of equivalents, and directly or indirectly;
- b. A judgment that Tesla's infringement of the '205 Patent has been willful;
- c. A judgment that Tesla has infringed and/or is infringing one or more claims of the '357 Patent, literally or under the doctrine of equivalents, and directly or indirectly;
- d. A judgment that Tesla's infringement of the '357 Patent has been willful;
- e. A judgment that Tesla has infringed and/or is infringing one or more claims of the '119 Patent, literally or under the doctrine of equivalents, and directly or indirectly;
- f. A judgment that Tesla's infringement of the '119 Patent has been willful;
- g. An award for all damages arising out of Tesla's infringement, together with prejudgment and post-judgment interest, jointly and severally, in an amount according to proof, including without limitation attorneys' fees and litigation costs and expenses;
- h. Any future compensation due to Conversant for Tesla's infringement (past, present or future) not specifically accounted for in a damages award (or other relief), and/or permanent injunctive relief;
- i. An award of reasonable attorneys' fees as provided by 35 U.S.C. § 285 and enhanced damages as provided by 35 U.S.C. § 284; and
- j. All further relief in law or in equity as the Court may deem just and proper.

Dated: April 24, 2020

Respectfully submitted,

/s/ Jamie H. McDole

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